BLEEDING AND SHOCK

LESSON OBJECTIVE

Identify the types of bleeding and shock and the treatment of each

OVERVIEW

- Circulatory System Review
- External Bleeding
- Internal Bleeding
- Shock

Circulatory System Review

ANATOMY

- Heart
- Arteries
- Capillaries
- Veins
- Blood
- Physiology

Circulatory System Review (cont)

Perfusion

- **Circulation of blood through an organ structure**
- **Delivers oxygen and other nutrients to cells of all organ systems and removes waste products**
- **Hypoperfusion is inadequate circulation of blood through and organ**

EXTERNAL BLEEDING

- BSI
- Severity
- Types
- Emergency Care
- Special Areas

Body Substance Isolation (BSI)

- Must be routinely taken to avoid skin and mucous membrane exposure to body fluids
  - Eye protection
  - Gloves
  - Gown
  - Mask
  - Hand washing following each run

External Bleeding - Severity

- Serious condition
  - Adult sudden loss of one liter (1000cc)
  - Child sudden loss of 1/2 liter (500cc)
  - Infant sudden loss of 100-200cc
  - e.g. A one year old has only 800cc of blood; therefore 150cc is a major blood loss.

SEVERITY (cont)

- Severity of blood loss based on S&S and gen. impression of amount lost.
  - S&S of shock are serious
- Natural response of blood vessel is contractions and clotting; serious injury may prevent this
- Uncontrolled bleeding or significant blood loss => shock and possibly death

TYPES OF BLEEDING

- ARTERIAL
- VENOUS
- CAPILLARY

ARTERIAL BLEEDING

- Spurting
- Bright red and oxygen rich
- Most difficult to control due to pressure
- As BP drops, spurting may also drop

VENOUS BLEEDING

- Steady stream
- Dark and oxygen poor
- Can be profuse; easier to control due to lower pressure

CAPILLARY BLEEDING

- Oozes
- Dark red
- Clots spontaneously

EMERGENCY CARE OF EXTERNAL BLEEDING

- BSI
- MOA
- Bleeding control
  - Apply fingertip pressure
  - Elevate bleeding extremity
  - Packing with gauze; direct hand pressure
  - Additional pressure for diffuse bleeding
  - Pressure points in extremities

WHAT IF DIRECT PRESSURE FAILS?!?!

CONTROLLING EXTERNAL BLEEDING

- **Splints**
  - **Reduces bone motion in fractures; therefore reduces aggravation of tissue damage and associated bleeding**
  - **May allow prompt control of bleeding**

EXTERNAL BLEEDING (cont)

- **Pressure Splints**
  - **May help control bleeding of lacerated tissues or associated with fractures**
  - **Pneumatic counterpressure devices effective control certain severe bleeding**
    - **Massive soft tissue injuries to lower extremities**
    - **Traumatic pelvic hemorrhage**

TOURNIQUET

- LAST resort!
- Can cause permanent damage
  - Nerves
  - Muscles
  - Blood vessels

Tourniquet Procedures

- Bandage 4 in. wide/ 6-8 layers deep
- Wrap twice; proximal to bleeding but as distal as possible
- Tie knot; place stick or rod on knot and tie over stick in square knot
- Twist stick until bleeding stops
- Notify EMS personnel of tourniquet
- Document time applied

TOURNIQUET (cont)

- BP cuff as a tourniquet
- Precautions
  - Use WIDE bandage; secure tightly
  - No wire, rope, belt or material which may cut into skin or tissue
  - Do not remove or loosen unless directed
  - Leave in open view
  - Not over joint

SPECIAL AREAS

- Nose, ears and mouth
- Causes:
  - Injured skull
  - Facial trauma
  - Digital trauma
  - Sinusitis; other URIs
  - HTN
  - Coagulation disorders

SPECIAL AREAS (cont)

- **Bleeding from ears or nose**
  - **Skull fracture?**
  - **Do not stop blood flow**
  - **Loose dressing**

SPECIAL AREAS (cont)

- **Treating Epistaxis**
  - **Sitting position, leaning forward**
  - **Direct pressure; pinch nostrils together**
  - **Calm and quiet patient**

INTERNAL BLEEDING

- Severity
- Relationship to mechanism of injury
- S&S
- Emergency medical care

Severity of Internal Bleeding

- Can result in severe blood loss, shock and death
- Concealed extensive bleeding
- Extremities
- Based on mechanism of injury and clinical S&S

Internal Bleeding and Mechanism of Injury

- Blunt trauma
  - Falls
  - Motorcycle crashes
  - Pedestrian impacts
  - Automobile collisions
  - Blast injuries
  - Look for contusions, abrasions, impact marks and swelling

Mechanism of Injury (cont)

- Penetrating trauma may also cause internal bleeding

S&S of Internal Bleeding

- Pain, tenderness, swelling and discoloration
- Bleeding from orifice
- Vomiting bright red blood or dark coffee ground colored blood
- Dark, tarry stools or bright red blood in stools

S&S of Internal Bleeding (comt)

- Tender, rigid and distended abdomen
- Late S&S of hypovolemic shock
  - Anxiety, restlessness, combatitiveness and altered mental status
  - Weakness, faintness or dizziness
  - Thirst
  - Shallow rapid breathing

Hypovolemic Shock (cont)

- Rapid weak pulse
- Pale, cool, clammy skin
- Cap. Refill > 2 seconds (infants/children)
- Dropping BP
- Dilated pupils; sluggish to respond
- Nausea and vomiting

Care of Internal Bleeding

- BSI
- MOA
- Oxygen
- If extremity, control with direct pressure or splint
- S&S of shock are critical -- Transport!

(Hypoperfusion Syndrome)

- Severity
- S&S
- Emergency Medical Care

Severity of Shock

- Inadequate perfusion of cells with oxygen and nutrients
- Inadequate removal of metabolic waste products
- Death of organs can occur; recognition and treatment are vital

Severity of Shock (cont)

- Peripheral perfusion drastically reduced
- Trauma patients develop shock due to internal and/or external bleeding
- Known as hypovolemic or hemorrhagic shock

S&S of Shock

- Mental States
- Peripheral perfusion
- Vital Signs
- Other S&S
- Infants and children

S&S of Shock (cont)

- Mental States
  - Restlessness
  - Anxiety
  - Altered mental status
- Peripheral perfusion
  - Delayed capillary refill in normal temp.
  - Weak, thready or absent peripheral pulses
  - Pale, cool, clammy skin

S&S of Shock (cont)

- Vital Signs
  - Decreased BP (late sign)
  - Increase pulse (early sign) - weak and thready
  - Increased respirations
    - Shallow
    - Labored
    - Irregular

Other S&S of Shock

- Dilated pupils
- Marked thirst
- Nausea and vomiting
- Pallor with cyanosis to lips

Shock in Infants/Children

- Maintain BP until volume more than half gone
- Low BP => close to death
- Infant or child in shock has less reserve

Emergency Medical Care of Shock

- BSI
- MOA
- Control external bleeding
- Pneumatic antishock garment IF…
- Trendelenburg position
- Splint suspected bone/joint injuries
- Prevent loss of body heat
- IMMEDIATE Transport!

SUMMARY

- Circulatory System Review
- External Bleeding
- Internal Bleeding
- Shock

QUESTIONS??